

EOS Production Sites Network Performance Report

This is a monthly summary of EOS network performance testing between production sites for December 2006 -- comparing the measured performance against the requirements.

Highlights:

- Mostly highly stable flows
 - EROS downgrade below results from requirement increase, not performance reduction.
 - There was a serious diurnal variation on all flows from LaRC during the last half of December – this was fixed in January.
- Requirements Basis:
 - December '03 requirements from BAH.
 - Updated to handbook 1.4.1 (3/22/06)
 - Additional Updates Incorporated:
 - New AIRS reprocessing flows (8/06)
 - GEOS requirements – Flows began this month
 - All LaRC “Backhaul” Requirements removed
 - Extension of TRMM, QuikScat missions
- Significant changes in testing are indicated in Blue, Problems in Red

Ratings Changes:

Upgrade: ↑ None

Downgrades: ↓ :

GSFC → EROS: Adequate → Almost Adequate

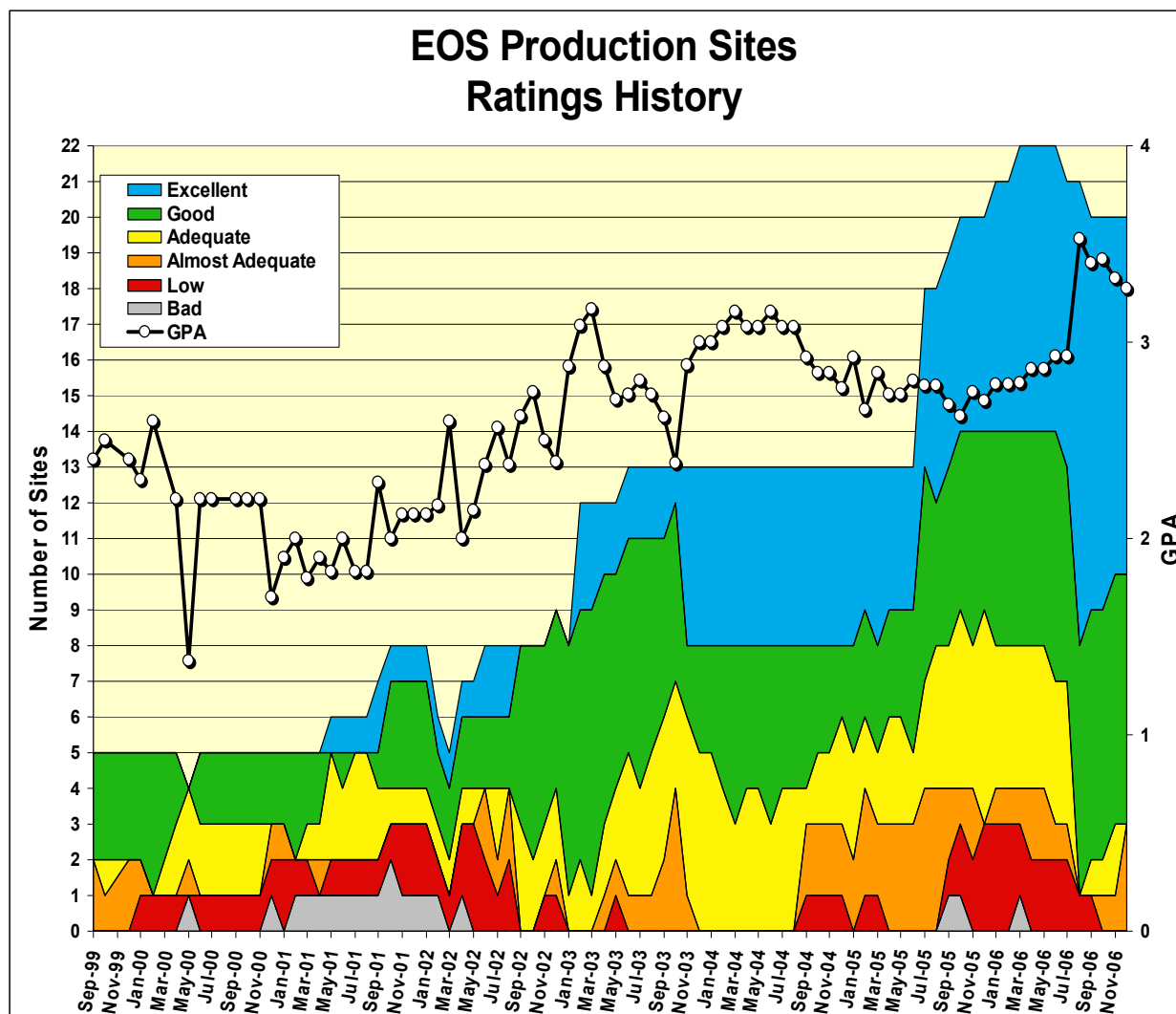
GSFC → NSIDC: Adequate → Almost Adequate

(See site discussion below for details)

Ratings Categories:

Rating	Value	Criteria
Excellent:	4	Total Kbps > Requirement * 3
Good:	3	1.3 * Requirement <= Total Kbps < Requirement * 3
Adequate:	2	Requirement < Total Kbps < Requirement * 1.3
Almost Adequate:	1.5	Requirement / 1.3 < Total Kbps < Requirement
Low:	1	Requirement / 3 < Total Kbps < Requirement / 1.3
Bad:	0	Total Kbps < Requirement / 3

Where Total Kbps = Integrated Kbps (where available), otherwise just iperf

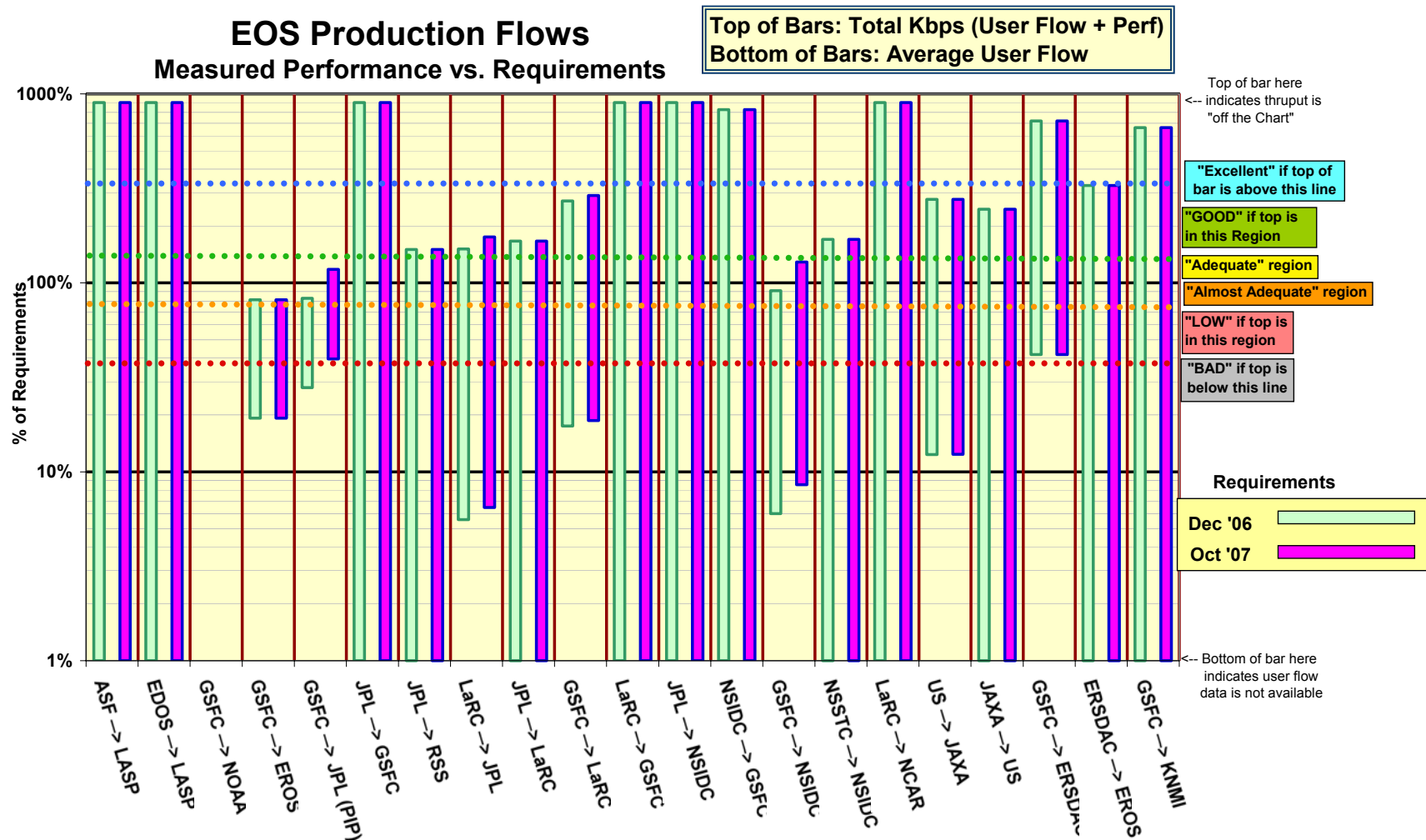
Ratings History:

The chart above shows the number of sites in each classification since EOS Production Site testing started in September 1999. Note that these ratings do NOT indicate absolute performance -- they are relative to the EOS requirements.

Network Requirements vs. Measured Performance

December 2006		Requirements (mbps)		Testing					Ratings		
Source → Destination	Team (s)	Current	Future	Source → Dest Nodes	Avg User Flow mbps	iperf Avg mbps	Total Avg mbps	Integrated mbps	Rating re Current Requirements		Rating re
		Dec-06	Oct-07						Dec-06	Last Month	Oct-07
GSFC → ASF	QuikScat, Radarsat	n/a	n/a	GSFC-CSAFS → ASF	n/a	1.44	1.44		n/a	n/a	n/a
ASF → LASP	QuikScat	0.02	0.02	ASF → LASP [via IOnet]	n/a	1.07	1.07		Excellent	E	Excellent
EDOS → LASP	ICESat, QuikScat	0.4	0.4	EDOS → LASP [via IOnet]	n/a	6.5	6.5		Excellent	E	Excellent
GSFC → NOAA	QuikScat	0.0	0.0	n/a	n/a	n/a	n/a		n/a	n/a	n/a
GSFC → EROS	MODIS, LandSat	383.9	383.9	ENPL-PTH → EROS PTH	73.8	306.2	379.9	312.5	AA	A	AA
GSFC → JPL (PIP)	AIRS, ISTs	57.6	40.5	GDAAC → JPL-AIRS	16.1	45.2	61.3	47.7	AA	AA	Adequate
JPL → GSFC	AMSR-E, MISR, etc.	7.4	7.4	JPL-PTH → GSFC-PTH	n/a	89.1	89.1		Excellent	E	Excellent
JPL → RSS	AMSR-E	2.5	2.5	JPL-PODAAC → RSS	n/a	3.7	3.7		GOOD	G	GOOD
LaRC → JPL	TES, MISR	45.8	39.6	LARC-DAAC → JPL-TES	2.6	67.8	70.3	69.2	GOOD	G	GOOD
JPL → LaRC	TES	52.6	52.6	JPL-PTH → LARC-PTH	n/a	87.5	87.5		GOOD	G	GOOD
GSFC → LaRC	CERES, MISR, MOPITT	71.7	67.2	GDAAC → LDAAC	12.5	191.4	203.9	194.6	GOOD	G	GOOD
LaRC → GSFC	MODIS, TES	0.2	0.2	LDAAC → GDAAC	n/a	142.3	142.3		Excellent	E	Excellent
JPL → NSIDC	AMSR-E	1.3	1.3	JPL-PTH → NSIDC SIDADS	n/a	88.4	88.4		Excellent	E	Excellent
NSIDC → GSFC	MODIS, ICESAT, QuikScat	13.2	13.2	NSIDC DAAC → GDAAC	0.1	108.8	108.9	108.8	Excellent	E	Excellent
GSFC → NSIDC	MODIS, ICESAT, QuikScat	91.0	64.1	GDAAC → NSIDC-DAAC	5.5	82.2	87.6	82.7	AA	A	Adequate
NSSTC → NSIDC	AMSR-E	7.5	7.5	NSSTC → NSIDC DAAC	n/a	12.7	12.7		GOOD	G	GOOD
LaRC → NCAR	HIRDLS	5.4	5.4	LDAAC → NCAR	n/a	54.9	54.9		Excellent	E	Excellent
US → JAXA	QuikScat, TRMM, AMSR	2.0	2.0	GSFC-CSAFS → JAXA DDS	0.2	5.5	5.7	5.5	GOOD	G	GOOD
JAXA → US	AMSR-E	1.3	1.3	JAXA DDS → JPL-QSCAT	n/a	3.1	3.1		GOOD	G	GOOD
GSFC → ERSDAC	ASTER	12.5	12.5	ENPL-PTH → ERSDAC	5.2	89.5	94.7	89.6	Excellent	E	Excellent
ERSDAC → EROS	ASTER	26.8	26.8	ERSDAC → EROS PTH	n/a	87.9	87.9		Excellent	E	Excellent
GSFC → KNMI	OMI	3.3	3.3	GSFC-MAX → OMI-PDR	n/a	21.8	21.8		Excellent	E	Excellent
Notes:		Flow Requirements include:						Ratings			
		TRMM, Terra, Aqua, Aura, ICESAT, QuikScat, GEOS						Summary			
								Dec-06	Reg	Oct-07	
								Score	Prev	Score	
*Criteria:	Excellent	Total Kbps > Requirement * 3			Excellent			10	10	10	
	GOOD	1.3 * Requirement <= Total Kbps < Requirement * 3			GOOD			7	7	7	
	Adequate	Requirement < Total Kbps < Requirement * 1.3			Adequate			0	2	2	
	Almost Adequate	Requirement / 1.3 < Total Kbps < Requirement			Almost Adequate			3	1	1	
	LOW	Requirement / 3 < Total Kbps < Requirement / 1.3			LOW			0	0	0	
	BAD	Total Kbps < Requirement / 3			BAD			0	0	0	
								Total			
								20	20	20	
								GPA			
								3.28	3.33	3.33	

This graph shows two bars for each source-destination pair. Each bar uses the same actual measured performance, but compares it to the requirements for two different times (December '06 and October '07). Thus if the requirements increase, the same measured performance will be lower in comparison.



Interpretation: The bottom of each bar is the average measured user flow to a site. Thus the bottom of each bar indicates the relationship between the requirements and actual flows. Note that the requirements include a 50% contingency factor above what was specified by the projects, so a value of 66% would indicate that the project is flowing as much data as requested. The top of each bar represents the integrated measurement – this value is used to determine the ratings.

1) EROS:

Ratings: GSFC → EROS: ↓ Adequate → **Almost Adequate**
 ERSDAC → EROS: Continued **Excellent**

Web Page: <http://ensight.eos.nasa.gov/Networks/production/EROS.shtml>

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-ENPL-PTH → EROS PTH	314.6	306.2	255.9	73.8	379.9	312.5
GSFC-DAAC → EROS LPDAAC	283.6	175.6	68.2	75.7	251.3	198.6
ERSDAC → EROS	88.8	87.9	72.5	(via APAN / Abilene / OC-12)		
NSIDC → EROS	106.4	105.6	102.8			
LaRC → EROS	92.4	69.4	8.4			
EROS LPDAAC → GSFC DAAC	124.4	113.9	104.9			
EROS LPDAAC → GSFC ECHO	86.8	70.0	51.3			
EROS PTH → GSFC PTH	346.1	333.4	312.9			

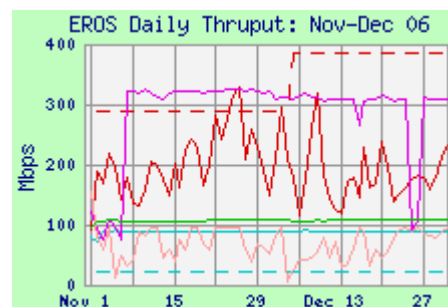
Requirements:

Source → Dest	Date	mbps	Rating
GSFC → EROS	→ Nov '06	285.4	Adequate
GSFC → EROS	Dec '06 → Mar '08	383.9	Almost Adequate
ERSDAC → EROS	FY '06, '07	26.8	Excellent

Comments:

GSFC → EROS: The performance this month was essentially stable, but the requirement increased by 35%, dropping the rating from Adequate to "Almost Adequate".

The rating is based on tests between the PTH hosts – they are outside the ECS firewalls, and therefore normally have higher thruput than between the DAACs. This therefore is a better measure of true network capability. The user flow this month was also stable, and had only a small contribution to the integrated measurement. The rating is based on the "Integrated" measurement, and as usual is lower than the sum of the User Flow + iperf.



ERSDAC → EROS: The median thruput from ERSDAC to EDC-PTH (in support of the ERSDAC to EDC ASTER flow, replacing tapes) was stable on the new route (limited by the ERSDAC 100 mbps tail circuit), and is more than 3 times the 26.8 mbps requirement, resulting in an "Excellent" rating.

NSIDC → EROS: The median thruput from NSIDC-SIDADS to EDC-PTH was stable.

LaRC → EROS: The thruput from LaRC-PTH to EDC-PTH was stable, **but there remains a very strong diurnal pattern (Daily best to worst ratio is 12:1!)** Note: This was fixed by NISN on approx Jan 6.

EROS → GSFC: The thruput for tests from EROS to GSFC were very stable this month.

2) JPL:

2.1) JPL ↔ GSFC:

Ratings: GSFC → JPL: Continued **Almost Adequate**
JPL → GSFC: Continued **Excellent**

Web Pages:

http://ensight.eos.nasa.gov/Organizations/production/JPL_QSCAT.shtml
http://ensight.eos.nasa.gov/Organizations/production/JPL_PODAAC.shtml
http://ensight.eos.nasa.gov/Missions/aqua/JPL_AIRS.shtml

Test Results:

Source → Dest	NET	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
		Best	Median	Worst			
GSFC-DAAC → JPL-AIRS	PIP	47.2	45.2	17.6	16.1	61.3	47.7
GSFC-CNE → JPL-AIRS	SIP	46.9	43.0	12.6			
GSFC-CSAFS → JPL-QSCAT	PIP	7.5	7.3	4.1			
GSFC-CSAFS → JPL-QSCAT-BU	PIP	7.3	7.1	4.7			
GSFC-PTH → JPL-QSCAT	PIP	79.3	66.6	26.9			
GSFC-PTH → JPL-PODAAC	PIP	86.3	79.0	37.2			
GSFC-CNE → JPL-MISR	SIP	39.6	21.8	6.4			
JPL-PTH → GSFC PTH	PIP	89.1	89.1	88.5			
JPL-PODAAC → GSFC DAAC	PIP	39.7	35.9	7.6			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → JPL Combined	FY '07	57.6	Almost Adequate
JPL → GSFC combined	CY '06-09	7.4	Excellent

Comments:

GSFC → JPL:

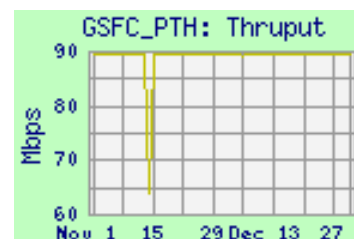
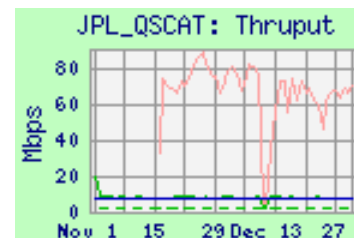
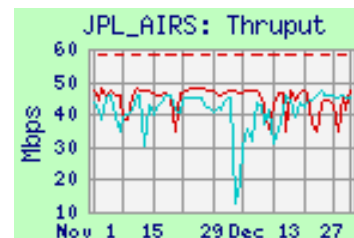
AIRS: Performance from GSFC (DAAC and CNE) to JPL-AIRS was very stable this month, after dramatically improving with the NISN SIP WANR upgrade in April '06.

Note: The requirement was updated last month to reflect increased AIRS reprocessing requirements and GEOS flows (was 22.2 mbps previously).

Performance from the GSFC-DAAC is used as the basis of the ratings, and is now about 20% below this increased requirement (for all PIP flows combined), so the rating remains "Almost Adequate".

QSCAT: The performance from CSAFS was very stable this month, limited by the CSAFS 10 mbps Ethernet connection -- this flow did not significantly benefit from the WANR upgrade. A test from GSFC-PTH was added last month, to show the benefit of the WANR upgrade -- throughput from GSFC-PTH is about 10x as much as from CSAFS.

JPL → GSFC: The previous JPL-PODAAC to GSFC-DAAC testing was replaced by JPL-PTH to GSFC-PTH testing to better reflect the network capabilities. The rating remains "Excellent".



2.2) JPL ↔ LaRC

Ratings: LaRC → JPL: Continued
JPL → LaRC: Continued

Good
Good

Web Pages:

http://ensight.eos.nasa.gov/Organizations/production/JPL_TES.shtml

http://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
LaRC DAAC → JPL-TES	82.1	67.8	11.8	2.6	70.3	69.2
LaRC PTH → JPL-TES	86.1	75.9	10.6			
LaRC PTH → JPL-TES sftp	1.79	1.76	1.43			
LaRC DAAC → JPL-MISR	68.5	44.7	10.7			
JPL-PTH → LaRC PTH	88.5	87.5	86.8			

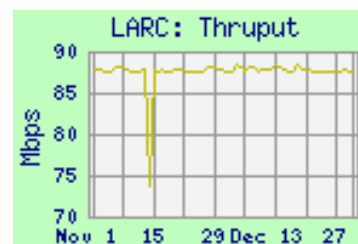
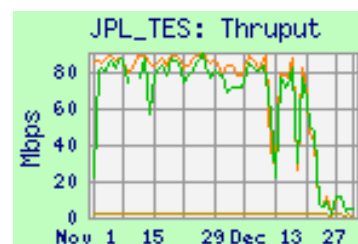
Requirements:

Source → Dest	Date	Mbps	Rating
LaRC DAAC → JPL-TES	FY '07	29.8	Good
LaRC DAAC → JPL-MISR	FY '07	18.5	Good
LaRC DAAC → JPL-Combined	FY '07	45.8	Good
JPL → LaRC	FY '07	52.6	Good

Comments:

LaRC → JPL: Performance remained mostly stable, with increased diurnal congestion observed in the last half of December, indicated by the daily worst dropping from over 50 mbps last month (This problem was fixed in January). The combined requirement increased last month, with the addition of GEOS flows (was 39.6 mbps previously). The rating remains "Good". Sftp results are much lower than iperf, due to TCP window limitations.

JPL → LaRC: This requirement is for TES products produced at the TES SIPS at JPL, being returned to LaRC for archiving. The measured thruput was very stable this month after improving dramatically with the NISN WANR. The rating remains "Good".

**2.3) ERSDAC → JPL ASTER IST**

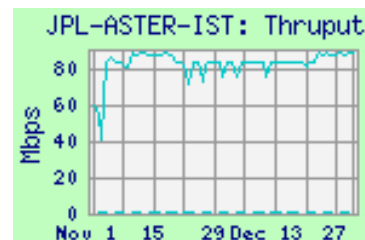
Rating: Continued **Excellent**

Web Page: http://ensight.eos.nasa.gov/Organizations/production/JPL_PTH.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → JPL-ASTER-IST	82.3	81.7	52.9

Comments: This test was initiated in March '05, via APAN replacing the EBnet circuit. The typical 82 mbps must be well in excess of the requirements (IST requirements are generally 311 kbps).



3) Boulder CO:

3.1) GSFC $\leftarrow \rightarrow$ NSIDC DAAC: Ratings: NSIDC \rightarrow GSFC: Continued **Excellent**
 GSFC \rightarrow NSIDC: **↓ Adequate \rightarrow Almost Adequate**

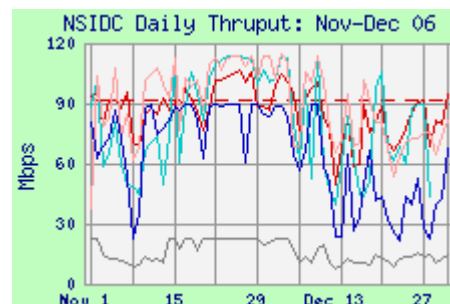
Web Page: <http://ensight.eos.nasa.gov/Organizations/production/NSIDC.shtml>

Test Results:

Source \rightarrow Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-DAAC \rightarrow NSIDC-DAAC	105.2	82.2	30.8	5.5	87.7	82.7
GSFC-PTH \rightarrow NSIDC-DAAC	113.6	75.0	26.0			
GSFC-ISIPS \rightarrow NSIDC (iperf)	113.1	67.6	22.1			
GSFC-ISIPS \rightarrow NSIDC (ftp)	21.9	12.2	5.1			
NSIDC DAAC \rightarrow GSFC-DAAC	123.7	108.8	23.2			
NSIDC \rightarrow GSFC-ISIPS (iperf)	84.6	81.5	22.1			

Requirements:

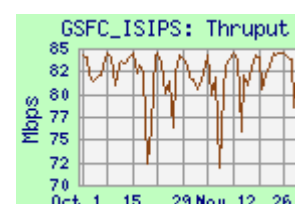
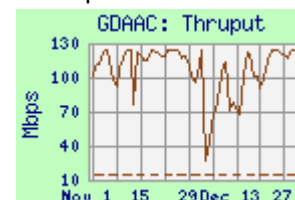
Source \rightarrow Dest	Date	Mbps	Rating
GSFC \rightarrow NSIDC	Oct-Dec '06	91.0	Adequate
GSFC \rightarrow NSIDC	CY '07	64.1	Good
NSIDC \rightarrow GSFC	CY '06-'07	13.3	Excellent



Comments: GSFC \rightarrow NSIDC: This rating is based on testing from GDAAC to the NSIDC DAAC. The iperf and integrated thrupt values **dropped this month** (but improved again in January), after increasing about 25% due to the NISN WANR upgrade. This requirement varies from month to month, based on planned ICESAT reprocessing. This month the reprocessing **is** included. The Integrated thrupt is now BELOW this higher requirement but by less than 30%, so the rating drops to "Almost Adequate". Note that last September (also in January) reprocessing **is not** included – the requirement was lower, so the same performance would have rated "Good".

NSIDC \rightarrow GSFC: Performance from NSIDC to GSFC showed increased congestion (cleared in January), after improving dramatically with the NISN WANR upgrade in August; the rating remains "Excellent".

GSFC-ISIPS $\leftarrow \rightarrow$ NSIDC: Performance between ISIPS and NSIDC is at nominal levels for the circuit capacity. Iperf thrupt was much higher than ftp due to window size limitations.



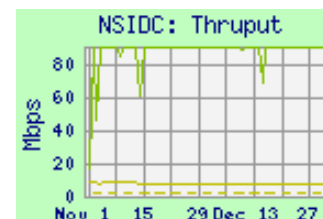
3.2) JPL \rightarrow NSIDC:

Ratings: JPL \rightarrow NSIDC: Continued **Excellent**

Test Results:

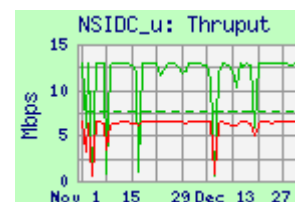
Source \rightarrow Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
JPL PTH \rightarrow NSIDC-SIDADS	88.8	88.4	21.7	1.34
JPL-PODAAC \rightarrow NSIDC-SIDADS	7.2	7.2	6.5	1.34

Comments: In October an additional test from JPL-PTH to NSIDC-SIDADS was added to more fully assess the true network capability – the thrupt is much higher than from PODAAC. Thrupt from JPL was stable this month after the previous improvement from the NISN WANR upgrade. The rating remains "Excellent".



3.3) NSSTC → NSIDC:Ratings: NSSTC → NSIDC: Continued **Good**Web Pages: http://ensight.eos.nasa.gov/Missions/aqua/NSIDC_u.shtml**Test Results:**

Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
NSSTC → NSIDC DAAC (iperf)	12.8	12.7	0.2	7.5
NSSTC → NSIDC DAAC (ftp)	6.4	6.3	5.2	

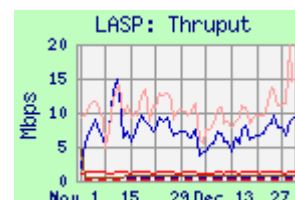


Comments: NSSTC (Huntsville, AL) sends AMSR-E L2/L3 data to NSIDC. Median thrupt is stable and more than 30 % over the requirement, so is rated "Good".

However, performance is "bimodal". The above values are most common, but there are various periods, some short, some up to 12 hours, where thrupt is about 100 kbps. This may be related to user data flows.

3.4) LASP:Ratings: GSFC → LASP: Continued **Excellent**ASF → LASP: Continued **Excellent**Web Page: <http://ensight.eos.nasa.gov/Organizations/production/LASP.shtml>**Test Results:**

Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
ASF → LASP	1.33	1.07	0.51	0.024
GSFC EDOS → LASP	12.3	6.5	2.5	0.4
GSFC PTH → LASP (iperf)	18.0	9.5	3.4	
GSFC PTH → LASP (sftp)	0.50	0.50	0.47	



Comments: The requirements are now divided into ASF and GSFC sources:

ASF → LASP: Thrupt from ASF to LASP is limited by ASF T1 circuit, rating "Excellent", due to the modest requirement

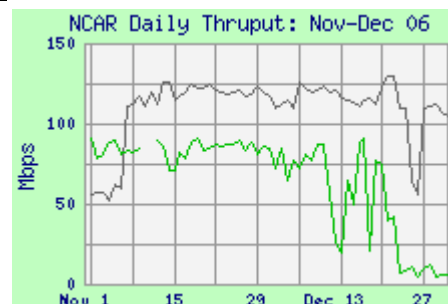
GSFC → LASP: GSFC → LASP iperf thrupt is well above the requirement; the rating continues "Excellent". But sftp thrupt is MUCH lower than iperf, due to window size limitations. A patch is available. Thrupt (iperf) improved to about 30 mbps in January.

3.5) NCAR:Ratings: LaRC → NCAR: Continued **Excellent**GSFC → NCAR: Continued **Excellent**Web Pages <http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml>**Test Results:**

Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
LaRC → NCAR	89.9	54.9	10.6	5.4
GSFC → NCAR	126.0	113.7	91.9	5.1

Comments: NCAR (Boulder, CO) is a SIPS for MOPITT (Terra, from LaRC), and has MOPITT and HIRDLS QA (Aura, from GSFC) requirements. Performance from LaRC (via NISN to MAX to Abilene) suffered the same LaRC outflow congestion this month (median was 84 mbps last month, daily worst was 43 mbps -- fixed in January), but thrupt is still well above 3 x the requirement, so the rating remains "Excellent".

From GSFC the median thrupt is steady at well over 3 x the requirement, so that rating also remains "Excellent".



4) GSFC ↔ LaRC:Ratings: GSFC → LaRC: Continued **Good**LDAAC → GDAAC: Continued **Excellent**

Web Pages: <http://ensight.eos.nasa.gov/Organizations/production/LARC.shtml>
<http://ensight.eos.nasa.gov/Organizations/production/LATIS.shtml>

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GDAAC → LDAAC	256.9	191.4	98.7	12.5	203.9	194.6
GSFC-NISN → LaTIS	91.8	81.7	36.6			
GSFC-PTH → LaRC-PTH	93.3	92.1	57.7			
GSFC-PTH → LaRC-ANGe	91.8	81.7	36.6			
LDAAC → GDAAC	233.0	142.3	44.0			
LDAAC → GSFC-ECHO	87.9	82.4	45.1			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → LARC (Combined)	11/06 – 2/07	71.7	Good
LDAAC → GDAAC	FY '07	0.2	Excellent

Comments: Performance of all GSFC ↔ LaRC flows improved dramatically with the NISN WANR upgrade in August '06.

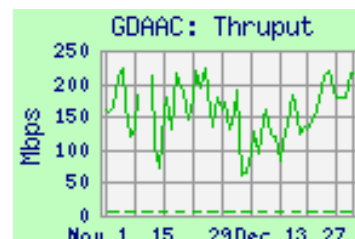
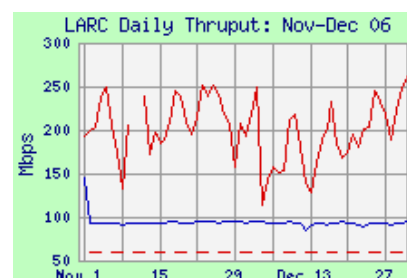
GSFC → LaRC: The combined requirement had been split between LDAAC and LaTIS when the flows were on separate circuits, but is now treated as a single requirement as they have been both on PIP since Feb '05. The rating is now based on the GDAAC to LaRC ECS DAAC thrupt, compared to the combined requirement. **This requirement increased last month with the addition of GEOS flows (was 67 mbps last month).**

With this increased requirement, the **GSFC → LaRC ECS DAAC** median thrupt is now slightly below 3 x the combined requirement, so the combined rating drops to "Good". **The diurnal variation (ratio of median daily best to median daily worst) was somewhat reduced this month—was 3.4:1, this month 2.6:1. This improved further in January.**

Also note: the lower peaks (around 90 mbps) to LaTIS, LaRC-PTH, and LaRC-ANGe are limited by 100 mbps LAN connections.

LaRC → GSFC: Performance from LDAAC → GDAAC was stable this month. The thrupt remained much more than 3 x this requirement, so the rating continues as "Excellent". **The severe diurnal variation of LaRC outflow is also observed on this circuit (fixed in January), with the daily peak about 5x the daily worst.**

The thrupt from LDAAC to GSFC-ECHO is lower than LDAAC to GDAAC due to a 100 mbps LAN connection.



5) US ↔ JAXA:

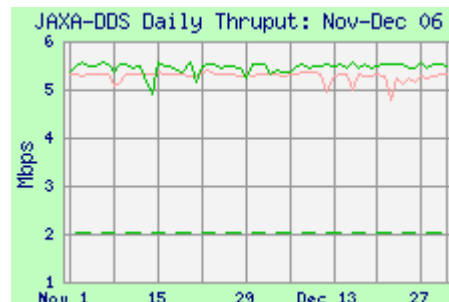
Ratings: JAXA → US: Continued
US → JAXA: Continued

Good
Good

Web Pages http://ensight.eos.nasa.gov/Organizations/production/JAXA_EOC.shtml
http://ensight.eos.nasa.gov/Organizations/production/JPL_QSCAT.shtml
http://ensight.eos.nasa.gov/Organizations/production/GSFC_SAFS.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-CSAFS → JAXA-DDS	5.41	5.27	3.98	0.25	5.52	5.50
GSFC-EDOS → JAXA-azusa	8.14	7.14	2.47			
GSFC-ENPL → JAXA-azusa	67.8	42.9	25.7			
GSFC-PTH → JAXA-azusa	48.7	30.9	13.7			
GSFC-PTH → JAXA (sftp)	0.83	0.82	0.77			
JAXA-DDS → JPL-QSCAT	3.18	3.14	2.83			
JAXA-DDS → GSFC-DAAC	1.98	1.96	1.92			
JAXA-azusa → GSFC-MAX	8.95	8.85	8.46			

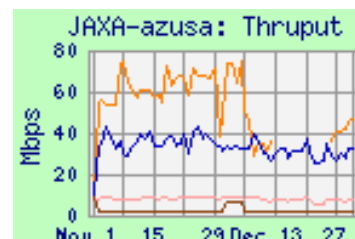
**Requirements**

Source → Dest	Date	mbps	Rating
GSFC → JAXA	Nov '03 – Mar '08	1.99	Good
JAXA → US	Nov '03 – Mar '08	1.28	Good

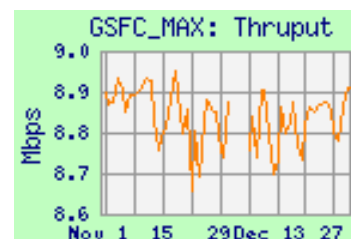
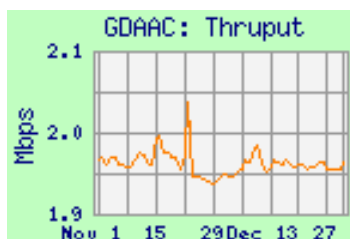
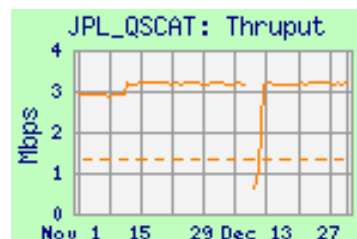
Comments: The US → JAXA requirement was updated in October '06 to reflect the extension of the TRMM and QScat missions (the requirement was 1.43 mbps previously). The JAXA flows were moved to APAN / Sinet -in August '06. Prior to this switch the flows used a dedicated 2 mbps ATM circuit from JPL to JAXA, using NISN PIP between GSFC and JPL. Performance on that circuit was stable at about 1.5 mbps.

US → JAXA: Performance from GSFC improved substantially with the switch to APAN / Sinet, and is now limited by TCP window size and a 10 mbps Ethernet on JAXA's DDS node, and the GSFC-EDOS-Mail node. Thruput was stable this month. With the increased requirement, the thruput is below 3 x the requirement, so the rating remains "Good".

Performance from GSFC-PTH and GSFC-ENPL to the azusa test node at JAXA is not limited by a 10 mbps Ethernet, so its much higher performance more accurately shows the capability of the network. **But thruput using sftp between these same nodes is much lower, limited by ssh window size. A patch is available, but is not installed.**



JAXA → US: Performance improved with the switch to APAN / Sinet in August, and is now also limited by TCP window size and 10 mbps Ethernet. But it has not yet been retuned to fully utilize the increased network capability. The thruput from JAXA to JPL was more than 30% over the requirement, but less than 3 x, so the rating remains "Good".



6) ERSDAC ↔ US:Rating: Continued **Excellent**Web Page : <http://ensight.eos.nasa.gov/Organizations/production/ERSDAC.shtml>**US → ERSDAC Test Results:**

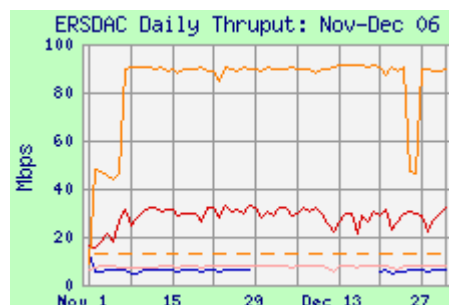
Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GDAAC → ERSDAC	34.9	28.8	12.6			
GSFC ENPL (FE) → ERSDAC	90.0	89.5	74.9	5.2	94.7	89.6
GSFC-EDOS → ERSDAC	6.0	5.9	2.3			

Requirements:

Source → Dest	FY	Mbps	Rating
GSFC → ERSDAC	'03 - '07	12.5	Excellent

Comments: Dataflow from GSFC to ERSDAC was switched to APAN in February '05, and the performance above is via that route.

The thrupt from GDAAC is apparently limited by packet loss at the GigE to FastE switch at Tokyo-XP. The GigE GDAAC source does not see any bottlenecks until this switch (The Abilene and APAN backbones are 10 Gbps), and thus exceeds capacity of the switch's FastE output circuit. But the FastE connected GSFC-ENPL node is limited to 100 mbps by its own interface, so does not suffer performance degrading packet loss – its performance is much higher. Testing from EDOS to ERSDAC is currently limited by a 10 mbps Ethernet in its path – a waiver request has been initiated to use the FastE interface.



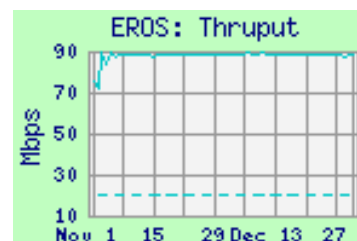
The requirement now includes the level 0 flows which used to be sent by tapes. The thrupt increased this month on Nov 6 (and got steadier from GSFC-ENPL at the same time). It continues to be more than 3 x this requirement, so the rating remains "Excellent".

ERSDAC → US Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → JPL-ASTER IST	82.3	81.7	52.9
ERSDAC → EROS	88.8	87.9	72.5

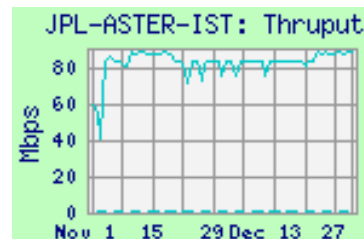
Requirements:

Source → Dest	Date	mbps	Rating
ERSDAC → EROS	FY '07	26.8	Excellent

**Comments:**

ERSDAC → EROS: The results from this test (in support of the ERSDAC to EROS ASTER flow, replacing tapes) were stable this month. Thrupt improved to these present values in April '05 after the Abilene to NGIX-E connection was repaired. The median thrupt is more than 3 x the requirement, so the rating remains "Excellent"

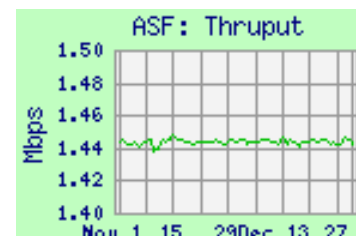
ERSDAC → JPL-ASTER-IST: This test was initiated in March '05, via APAN replacing the EBnet circuit. The results are much higher than previously via the 1 mbps ATM circuit, and should be considered "Excellent" (no requirement is specified at this time – but other IST requirements are 311 kbps)



7) ASFRating: Continued **Excellent**Web Page: <http://ensight.eos.nasa.gov/Organizations/production/ASF.shtml>

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
GSFC-CSAFS → ASF	1.45	1.44	1.29
ASF → LASP	1.33	1.07	0.51
ASF → GSFC-CSAFS	1.38	1.30	0.74



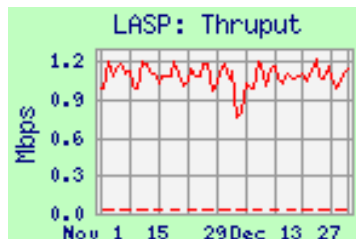
Comments: Testing to ASF transitioned to IOnet in April '06 – accordingly, testing was discontinued from ASF to NOAA and JPL-SEAPAC; also user flow data is no longer available.

Performance to ASF has been consistent with the T1 (1.5 mbps) circuit capacity.

Performance from ASF to LASP and CSAFS was stable; the rating remains “Excellent”.

Requirements:

Source → Dest	Date	kbps	Rating
ASF → LASP	FY '07	24	Excellent

**8) Other SIPS Sites:**

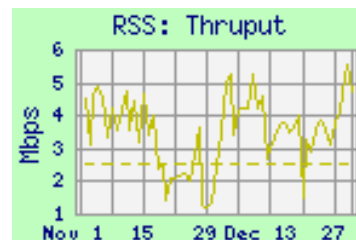
Web Pages <http://ensight.eos.nasa.gov/Missions/aqua/RSS.shtml>
http://ensight.eos.nasa.gov/Missions/aura/KNMI_OMIPDR.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			Requirement	Rating
	Best	Median	Worst		
JPL → RSS	5.47	3.73	1.89	2.4	Continued Good
GSFC → KNMI-ODPS	22.4	21.8	19.9	3.3	Continued Excellent

Comments:

8.1 RSS: RSS (Santa Rosa, CA) is a SIPS for AMSR-E, receiving data from JPL, and sending its results to GHCC (aka NSSTC) (Huntsville, AL). The NISN dedicated circuit from JPL to RSS was upgraded in August '05 from 2 T1s (3 mbps) to 4 T1s (6 mbps) to accommodate the larger RSS to GHCC flow. This month the thruput was less noisy and mostly stable. The iperf thruput is again more than 30% above the requirement, so the rating remains “Good”. User flow data remains unavailable on this circuit.



Note that with the present configuration (passive servers at both RSS and GHCC), the RSS to GHCC performance cannot be tested.

8.2 KNMI: KNMI (DeBilt, Netherlands) is a SIPS and QA site for OMI (Aura). The route from GSFC is via MAX to Abilene, peering in NY with Surfnet's 10Gbps circuit to Amsterdam. The rating is based on the results to the ODPS primary server, protected by a firewall, and was quite a bit lower than previously to the Backup server, which was outside the firewall. Thruput remains well above 3 x the requirement, rating “Excellent”.

